

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-19 (Cancelled)

20. (Currently Amended) A composting system, comprising:

- a) an insulated, vertical and parallel sided tower, the tower including:
 - i) one or more chambers for bacterial and fungal breakdown of biodegradable materials having an infeed moisture content of between sixty and eighty percent ~~fifty and seventy percent~~ (w/w), each of the one or more chambers including:
 - 1) a base; and
 - 2) a mechanical compost removal mechanism fitted to the base, the mechanical compost removal mechanism being configured such that:
 - A) air is induced into the chamber through the mechanism; and
 - B) output is removed from the chamber through the mechanism;
 - b) wherein excess air is induced into the chamber through the mechanical compost removal mechanism at an aeration rate provided by a naturally induced upward draft due to the energy retained in the composting biodegradable materials by said insulated tower, the aeration rate being stoichiometrically matched to biological oxygen demand plus an excess of between three and seven percent.

21. (Previously Presented) A composting system as recited in Claim 20 wherein operation can be continuous with the composting biodegradable materials descending in a plug flow manner using controlled shrinkage and wall pressure relief due to biological

ablation of the materials, without internal agitation by mechanical means, during descent of the materials through the chambers combined with periodic removal of output.

22. (Previously Presented) A composting system as recited in Claim 20 wherein the naturally induced excess air and off gases evolved through biological activity are modulated by a fan with an integral condenser/scrubber for odour control assurance and condensate removal from the off gas for disposal or reuse within the chambers to maintain minimum average pile moisture levels of between forty five and fifty percent (w/w) thereby securing the maintenance of a biofilm or matrix particulate moisture coating providing habitat for micro-organisms capable of high temperature gas phase conversions as a food source in high temperature zones and supporting fungal activity in lower temperature zones.

23. (Previously Presented) A composting system as recited in Claim 22 wherein the fan maintains the biofilm or matrix particulate moisture coating such that a majority of high temperature gas phase conversions at the interface of the gas/biofilm are of anaerobically produced normally odorous gases and are carried out by bacteria of pyrophilic and thermophilic genera thus making the composting materials largely self filtering in respect of undesirable odours.

24. (Previously Presented) A composting system as recited in Claim 22 wherein the fan maintains the biofilm or matrix particulate moisture coating from input to output thereby limiting the possibility of pyrolysis or fire while encouraging high temperature micro-organism activity.

25. (Currently Amended) A composting system as recited in Claim 20 wherein the aeration rate of the induced excess air through the mechanical compost removal mechanism reduces the cooling effect on a bottom layer ~~the bottom layers~~ of the biodegradable materials located at and near the mechanical compost removal mechanism, giving ~~high~~ thermal efficiency to the biodegradable materials at the an effective working

height, whereby the effective working height is defined as the height of the biodegradable materials located above the bottom layer.

26. (Previously Presented) A composting system as recited in Claim 25 wherein the aeration rate of the induced excess air through the mechanical compost removal mechanism promotes fungal attack of remaining organic matter in the lower temperature bottom layers.

27. (Currently Amended) A composting system comprising:

- a) a continuous-flow vertical composting tower having one or more compartments the tower having at least two generally parallel sides; and
- b) a base of each compartment fitted with a grate through which output is removed and a plenum through which air is induced wherein a biomass for composting having an initial moisture content of 60-80 % wt./wt. of the total biomass descends through the tower to provide an operating temperature of 45-85 °C; and
- c) a top of each compartment, the top including an opening for discharge of the induced air, and wherein the tower is arranged and configured such that the induced air moves through the biomass as it flows from the base to the top.

28. (Currently Amended) A continuous-flow vertical composting system comprising:

- a) a vertical composting tower having a base and a top;
- b) a grate type device at a base of the tower through which output is removed;
- c) a plenum at the base of the tower through which airflow is induced; and
- d) an opening at the top of the tower through which airflow is discharged;
- e) a biomass for composting introduced at a top portion of the tower wherein the biomass has a moisture content of 60-80 % wt./wt. of the total biomass and descends through the tower to provide an operating temperature of 45-85 °C and the airflow provides an oxygen content equal to BOD plus an excess of 3 % to 7%; and
- f) wherein the tower is arranged and configured such that the biomass provides the sole pathway for the air as it flows from the plenum to the opening.

29. (Previously Presented) A composting system according to claim 20 wherein the biomass comprises green waste and sludge.
30. (Previously Presented) A continuous-flow vertical composting system according to claim 21 wherein the airflow is naturally induced by retained pile energy.
31. (Previously Presented) A composting system according to claim 20 wherein the biomass has an active moisture bound biofilm.
32. (Previously Presented) A composting system according to Claim 27 wherein the vertical composting tower has vertical, parallel sides.
33. (Previously Presented) A composting system according to Claim 27 wherein the plenum is constructed such that the air is self-induced into the compartment of the tower.
34. (Previously Presented) A composting system according to Claim 27 wherein the air induced into the compartment flows through the grate.
35. (Previously Presented) A composting system according to Claim 34 wherein the grate is located between the plenum and the biomass, the plenum being configured to open to permit the removal of output from the compartment.
36. (Previously Presented) A composting system according to Claim 27 wherein the grate is an oscillating grate.
37. (Previously Presented) A composting system according to Claim 28 wherein the vertical composting tower has vertical, parallel sides.
38. (Previously Presented) A composting system according to Claim 28 wherein the plenum is constructed such that the airflow is self-induced into the compartment of the tower.

39. (Currently Amended) A composting system according to Claim 28 wherein the airflow induced into the compartment first flows through the grate type device.
40. (Currently Amended) A composting system according to Claim 39 wherein the grate type device is located between the plenum and the biomass, the plenum being configured to open to permit the removal of output from the compartment.
41. (Currently Amended) A composting system according to Claim 28 wherein the grate type device is an oscillating grate.
42. (New) A composting system according to Claim 27 wherein all of the induced air moves through the biomass.